REMARKS

These amendments and remarks are filed in response to the final Office Action mailed April 16, 2010. For the following reasons, this application should be allowed and the case passed to issue. No new matter or considerations are introduced by this amendment and this amendment clearly places the application in condition for allowance. Support for new claims 18-24 is found throughout the specification as originally filed.

Claims 18-24 are pending in this application. Claims 1-17 were rejected. Claims 1-17 are canceled in this response. New claims 18-24 are added in this response.

Claim Rejections Under 35 U.S.C. § 103

Claims 1, 2, 6, 7, 9, 11, and 12 were rejected under 35 U.S.C. §103(a) as being unpatentable over Mathias et al. (US 6,376,111) in view of Busenbender (US 2003/0039870) and Suzuki et al. (US 2001/0010872).

Claims 3, 4, 8, 16, and 17 were rejected under 35 U.S.C. §103(a) as being unpatentable over Mathias et al., Busenbender, and Suzuki et al., and further in view of Nonobe (US 6,524,733).

Claim 5 was rejected under 35 U.S.C. §103(a) as being unpatentable over Mathias et al., Busenbender, and Suzuki et al., and further in view of Ban et al. (US 6,350,536).

Claim 10 was rejected under 35 U.S.C. §103(a) as being unpatentable over Mathias et al., Busenbender, and Suzuki et al., and further in view of Ban et al. and Gilbert (US 2003/0170506).

Claim 13 was rejected under 35 U.S.C. §103(a) as being unpatentable over Mathias et al., Busenbender, and Suzuki et al., and further in view of Walsh (US 2002/0182466).

Claim 14 was rejected under 35 U.S.C. §103(a) as being unpatentable over Mathias et al. and further in view of Nonobe and Ban et al.

Claim 15 was rejected under 35 U.S.C. §103(a) as being unpatentable over Mathias et al. in view of Nonobe and Ban et al.

These rejections are traversed, and reconsideration and withdrawal thereof respectfully requested. The following is a comparison between the present invention, as claimed, and the cited prior art.

The rejections of claims 1-17 are moot, as these claims have been canceled.

New claims 18-23 are allowable over the cited references. Mathias et al., Busenbender, and Suzuki et al., whether taken alone, or in combination, do not suggest a programmable controller programmed to: detect either of the outside air temperature or a temperature of the fuel cells in a predetermined timing after the power generation is halted; determine if either of the outside air temperature or the temperature of the fuel cells in the predetermined timing after the power generation is halted is in a predetermined temperature region which is set between a reference temperature below which freezing in the fuel cells is expected and a freeing point; and control the moisture-adjusted gas generating mechanism to supply the moisture-adjusted gas to at least one of the anode and cathode, when the outside air temperature or the temperature of the fuel cells in the predetermined timing after the power generation is halted is in a predetermined temperature region, so as to remove surplus moisture in the fuel cells and maintain an appropriate wet condition of the fuel cells, as required by claim 18.

According to the Office Action, Mathias et al. teach humidity control and Busenbender discloses the necessity of humidity control during a period when the fuel cell power plant is not operative. Suzuki et al. teach a control system which directs dry air to remove residual moisture directly to the fuel cell, and thereby changing the humidity level in a fuel cell system to prevent freezing.

The Office Action concluded that it would have been obvious to one of ordinary skill in the art at the time the invention to use controlled modification of the humidity level to a target humidity within Mathias and Busenbender's fuel cell anode or cathode, because Suzuki teaches changing the humidity level in a fuel cell system allows for the prevention of freezing.

Mathias et al. teach detecting a resistance (humidity) of a fuel cell and controlling a humidifier **during operation of the fuel cells** such that the humidity of the fuel cell becomes equal to a target humidity which is predefined for increasing a generation efficiency of the fuel cells (col. 1:29-31 and col. 2:54-56).

Busenbender teaches that moisture remains in a fuel cell if a humidifier is applied during operation of fuel cells and may freeze after the operation of the fuel cells is halted (para. [0003]), and preventing freezing of the moisture in the fuel cells by mixing a chemical compound into the oxidant gas or the fuel gas (Abstract).

Suzuki et al. teach that moisture in fuel cells freeze when outside air temperature lowers after operating the fuel cells in a state where a humidifier is activated (para. [0012]), and introducing dry air into the humidifier to remove the residual moisture in the humidifier (Abstract). Suzuki et al. also teaches execution of this process after the operation of the fuel cells is halted.

As summarized above, the inventions according to Busenbender and Suzuki et al. are directed to a solution of a problem that is caused by the fuel cells operated under humidification by a humidifier. In view of these references, one of skill in the art would be lead to use a humidifier as disclosed in Mathias et al. during power generation by the fuel cells, and introduce a dry gas into the humidifier when the outside air temperature lowers including when the operation of the fuel cells is halted, thereby preventing the humidifier from freezing. Further,

one of skill in this art may consider mixing a chemical compound into the oxidant gas or the fuel gas so as to prevent the fuel cells from freezing after the operation of the fuel cells is halted.

There is no suggestion or motivation in these references to apply the humidity control during the operation of the fuel cells taught by Mathias et al. after the operation of the fuel cells is halted. Because, the humidity control using a humidifier that is taught by Mathias et al. is performed for the purpose of increasing power generation efficiency during operation of fuel cells and power generation is not performed when the fuel cells are not operating, one skilled in this art would not be lead to apply humidity control using a humidifier taught by Mathias et al. to a situation after the operation of the fuel cells is halted.

Nonobe, Ban et al., Gilbert, and Walsh, do not cure the deficiencies of Mathias, Busenbender, and Suzuki et al., as none of Nonobe, Ban et al., Gilbert, and Walsh suggest the claimed programmable controller.

The dependent claims are allowable for at least the same reasons as claim 18 and further distinguish the claimed fuel cell system. For example, claim 20 requires that the programmable controller is further programmed to determine if the wet condition of the fuel cells is wetter than a predetermined wet condition or drier than the predetermined wet condition, control the moisture-adjusted gas generating mechanism to adjust a relative humidity of the moisture-adjusted gas to be wetter when the wet condition of the fuel cells is drier than the predetermined wet condition, control the moisture-adjusted gas generating mechanism to adjust the relative humidity of the moisture-adjusted gas to be drier when the wet condition of the fuel cells is wetter than the predetermined wet condition, and control the moisture-adjusted gas generating mechanism to stop supplying the moisture-adjusted gas when the wet condition of the fuel cells

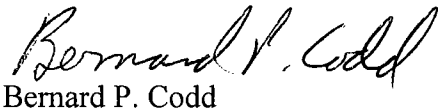
is equal to the predetermined wet condition. The cited references do not suggest a fuel cell system with a programmable controller with these additional limitations.

In view of the above amendments and remarks, Applicants submit that this amendment should be entered, the application allowed, and the case passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP



Bernard P. Codd
Registration No. 46,429

Please recognize our Customer No. 20277 as our correspondence address.

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 BPC:MWE
Facsimile: 202.756.8087
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